

REMARKS

In the Office Action mailed May 17, 2007, claims 1, 2, 4-11, and 13-21 were rejected under 35 U.S.C. § 103 over U.S. Patent No. 6,154,659 (Jalali) in view of U.S. Patent No. 6,591,106 (Zirwas).

It is respectfully submitted that a *prima facie* case of obviousness has not been established with respect to the claims because the hypothetical combination of the references does not disclose or hint at all elements of the claims.

The Office Action conceded that Jalali fails to disclose an optimal transmission power distribution of the radio signal between the polarizations estimated on the basis of minimizing a cost function relative to a quality of the signal received by the second station, and the transmission power is distributed between said versions of the radio signal in accordance with the estimated distribution, as recited in claim 1. However, the Office Action cited Zirwas as disclosing the above-identified features. Applicant respectfully disagrees.

Zirwas relates to a system for transmitting digital signals in a radio subscriber terminal network, particularly in a broadband RLL (Radio in the Local Loop) subscriber terminal network. This transmission system is characterized in that, for the digital signal transmission from the base station of a radio cell to the radio subscribers located in the radio cell, the total transmitting power of the base station is divided into a plurality of frequency sub-bands and/or periods with different transmitting powers, and the digital signals assigned to radio subscribers located a greater or lesser distance from the base station are transmitted in frequency sub-bands and/or periods with correspondingly higher, or respectively, lower transmitting power of the base station (column 2, lines 44-51).

In other words, in accordance with Zirwas, the digital signals assigned to radio subscribers located a greater distance from the base station are transmitted in frequency sub-bands with correspondingly higher transmitting power of the base station, and the digital signals assigned to radio subscribers located a lesser distance from the base station are transmitted in frequency sub-bands with correspondingly lower transmitting power (column 3, line 66-column 4, line 5).

Zirwas further goes on by stating its purported invention advantageously enables an optimal power distribution within the radio cell, it being possible either to reduce the total transmitting power of the base station, or even to utilize the gained power to increase the cell radius, given a constant total transmitting power.

However, Zirwas completely fails to address the polarization issue, which is to be understood as being a key issue in the present invention. Thus, it is clear that based on Zirwas, the power distribution is optimized so that different transmission powers are available to mobile stations depending on their distances from a base station. There is no indication whatsoever that an optimal transmission power distribution of the radio signal between *the polarizations* could be achieved.

Thus, it becomes clear that none of the cited references discloses or hints at power adjustments made by a base station so that the transmission power varies depending on the chosen polarization. In other words, the present invention can be considered as relating to polarization dependent power control.

As already stated in Applicant's previous Reply to Office Action, in the solution of Jalali, a mobile terminal sends power correction commands to a base station which adjusts the transmission power based on these commands. However, the power adjustment is *independent* of the polarizations of the antennas. This means that irrespective of the polarization, the power is adjusted in a specified manner. Moreover, the mobile station of Jalali does not make any distinction between different polarizations and thus, it is clear that it does not estimate any optimal transmission power distribution of the radio signals between the polarizations.

If, on the other hand, the teachings of Jalali and Zirwas were hypothetically combined, one would end up with a solution where the transmission power of the base station would be adjusted based on the estimated symbol-energy-to-noise-density at the receiving mobile station, but also based on the distance between the base station and the receiving mobile station. Therefore, power would be adjusted based on two factors, which may be interrelated. However, nothing in the references suggests that the power adjustment would be dependent on polarizations. Therefore, even if the teachings of Zirwas were combined with the teachings of Jalali, one would get no further indication about polarization dependent power control.

Furthermore, based on the teachings of the cited references, it does not become quite clear what the cost function is that needs to be minimized in order to obtain the desired power distribution between the polarizations.

The method according to some embodiments of the present invention is based on the observation that, in general, independently of the fast fading phenomenon, one polarization is favored over the other at a given instant in terms of power of the useful signal measured at the receiver. It is therefore judicious to favor one of the two polarizations in transmission (page 5, line 1-7) according to some embodiments. On the other hand, the solutions provided by Jalali and Zirwas simply do not allow favoring certain polarization over the other(s).

In view of the foregoing, it is respectfully submitted that a *prima facie* case of obviousness has not been established with respect to claim 1 since the hypothetical combination of the references fails to disclose or hint at all elements of the claims.

For similar reasons, a *prima facie* case of obviousness has not been established with respect to independent claim 10.

Dependent claims are allowable for at least the same reasons as corresponding independent claims.

Allowance of all claims is respectfully requested. The Commissioner is authorized to charge any additional fees and/or credit any overpayment to Deposit Account No. 20-1504 (MTR.0090US).

Respectfully submitted,

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